CLAIMS

1. A rotating electric machine comprising a stator (2), including a core of a magnetizable material and a winding (8), and a rotor (1), which, in relation to the stator, rotates with one degree of freedom, which rotor (1) is separated from the stator (2) by an air gap, **characterized in** that the stator (2) comprises a rounded cavity (9) surrounding the rotor (1) at all sides.

2. A rotating electric machine according to claim 1, **characterized in** that the cavity (9) is defined by a solid of revolution which diameter at least at the end parts is decreasing.

3. A rotating electric machine according to claim 1 or 2, **characterized in** that the cavity (9) is defined by a spheroid.

4. A rotating electric machine according to claim 1 or 2, **characterized in** that the cavity (9) is defined by a sphere.

5. A rotating electric machine according to any of claims 1 to 4, **characterized in** that the air gap, in a direction normally to the limiting surface of the cavity, exhibits a thickness which increases towards the ends of the stator.

6. A rotating electric machine according to any of claims 1 to 4, **characterized in** that the air gap, in a direction normally to the limiting surface of the cavity, has a uniform thickness.

7. Use of a rotating electric machine according to any of claims 1 to 6 for connection to a power network.

8. Use of a rotating electric machine according to any of claims 1 to 6 for direct connection to a high-voltage network of 36 kV or more.

9. Use of a rotating electric machine according to any of claims 1 to 6 as a generator in a conveyance powered by an internal-combustion engine.

10. Use of a rotating electric machine according to any of claims 1 to 6 as a prime mover for a conveyance.

11. Use of a rotating electric machine according to any of claims 1 to 6 as a prime mover in an electrical domestic appliance.

12. A method for manufacturing a rotating electric machine comprising a stator (2), which is provided with a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, is adapted to rotate with one degree of freedom, which rotor (1) is separated from the stator (2) by an air gap, **characterized in** arranging a rounded cavity (9) in the stator (2) and having the cavity to surround the rotor (1) at all sides.

13. A method according to claim 12, **characterized in** forming the cavity (9) to adapt the shape of a mirror symmetrical solid of revolution which diameter at least at the end parts is decreasing.

14. A method according to claim 12, **characterized in** forming the cavity (9) to be limited by a spheroid.

15. A method according to claim 12, **characterized in** forming the cavity (9) to be limited by a sphere.

16. A method for manufacturing a rotating electric machine comprising a stator (2) with a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, rotates with one degree of freedom, **characterized in** that the rotor (1) is adapted to be limited by a solid of revolution, that the stator (2) is adapted to surround the rotor with a rounded cavity, after which the stator is provided with the winding (8).

17. A rotating electric machine comprising a stator (2), including a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, rotates with one degree of freedom around an axle, **characterized in** that when powered a balanced three-dimensionally directed magnetic field operates between the stator (2) and the rotor (1), which magnetic field comprises magnetic vectors, each having an active component parallel to the rotor axle.

18. A rotating electric machine according to claim 18, **characterized in** that the sum of all active components parallel with the rotor axle is zero.

19. A rotating electric machine comprising a stator (2), including a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, rotates with one degree of freedom, **characterized in** that the stator (2) surrounds the rotor (1) at all sides and that the winding (8) comprises a cable (5).

20. A rotating electric machine according to claim 17, **characterized in** that the cable (5) is a high-voltage cable.

CLAIMS

1. A rotating electric machine comprising a stator (2), including a core of a magnetizable material and a winding (8), and a rotor (1), which, in relation to the stator, rotates with one degree of freedom, which rotor (1) is separated from the stator (2) by an air gap, **characterized in** that the stator core (2) comprises a rounded cavity (9) surrounding the rotor (1) at all sides.

2. A rotating electric machine according to claim 1, **characterized in** that the cavity (9) is defined by a solid of revolution which diameter at least at the end parts is decreasing.

3. A rotating electric machine according to claim 1 or 2, **characterized in** that the cavity (9) is defined by a spheroid.

4. A rotating electric machine according to claim 1 or 2, **characterized in** that the cavity (9) is defined by a sphere.

5. A rotating electric machine according to any of claims 1 to 4, **characterized in** that the air gap, in a direction normal to the limiting surface of the cavity, has a uniform thickness.

6. Use of a rotating electric machine according to any of claims 1 to 5 for connection to a power network.

7. Use of a rotating electric machine according to any of claims 1 to 5 as a generator in a conveyance powered by an internal-combustion engine.

8. Use of a rotating electric machine according to any of claims 1 to 5 as a prime mover for a conveyance.

9. Use of a rotating electric machine according to any of claims 1 to 5 as a prime mover in an electrical domestic appliance.

10. A method for manufacturing a rotating electric machine comprising a stator (2), which is provided with a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, is adapted to rotate with one degree of freedom, which rotor (1) is separated from the stator (2) by an air gap, **characterized in** arranging a rounded cavity (9) in the stator (2) and having the cavity to surround the rotor (1) at all sides.

11. A method according to claim 10, **characterized in** forming the cavity (9) to adapt the shape of a mirror symmetrical solid of revolution which diameter at least at the end parts is decreasing.

12. A method according to claim 10, **characterized in** forming the cavity (9) to be limited by a spheroid.

13. A method according to claim 10, **characterized in** forming the cavity (9) to be limited by a sphere.

14. A method for manufacturing a rotating electric machine comprising a stator (2) with a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, rotates with one degree of freedom, **characterized in** the steps of;
    - forming the rotor (1) to be limited by essentially a spheroid,
    - providing a stator core (2) containing a rounded cavity (9) to surround the rotor, and
    - providing the stator core (2) a winding (8) to form a complete stator.

15. A rotating electric machine comprising a stator (2), including a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, rotates with one degree of freedom around an axle, **characterized in** that the stator core (2) comprises a rounded cavity (9) surrounding the rotor (1) at all sides, that when powered a balanced three-dimensionally directed magnetic field operates between the stator (2) and the rotor (1), and that the magnetic field comprises magnetic vectors, each having an active component parallel to the rotor axle.

16. A rotating electric machine according to claim 15, **characterized in** that the sum of all active components parallel with the rotor axle is zero.

17. A rotating electric machine comprising a stator (2), including a core of a magnetizable material and a winding (8), and a rotor (1) which, in relation to the stator, rotates with one degree of freedom, **characterized in** that the stator core (2) comprises a rounded cavity (9) surrounding the rotor (1) at all sides and that the winding (8) comprises a cable (5).

18. A rotating electric machine according to claim 17, **characterized in** that the cable (5) is a high-voltage cable.

19. Use of a rotating electric machine according to claim 18 for direct connection to a high-voltage network of 36 kV or more.